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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,200	03/31/2004	Frederick J. AmRhein	ASMEX.366A	2193
20995	7590	09/20/2006	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP			LUND, JEFFRIE ROBERT	
2040 MAIN STREET			ART UNIT	
FOURTEENTH FLOOR			PAPER NUMBER	
IRVINE, CA 92614			1763	

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/817,200	Applicant(s) AMRHEIN ET AL	
	Examiner Jeffrie R. Lund	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 48-59,64 and 65 is/are pending in the application.
- 4a) Of the above claim(s) 1-47 and 60-63 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 48-59,64 and 65 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group II, claims 48-59, 64, and 65 in the reply filed on July 5, 2006 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 48-53, 55, 56, 64, and 65 are rejected under 35 U.S.C. 102(b) as being anticipated by Shang et al, US Patent 6,182,603B1.

Shang et al teaches a process chamber 12 that includes: an inlet (showerhead) 16 leading into the processing chamber and includes a throat 42 and a mouth (outer vertical edge of the showerhead); a remote plasma generator 66, 68; a channeling duct 53, 77 configured to channel the plasma generator product to the inlet 16 via throat 42; and a plate 15, located between the throat and mouth of the inlet, having at least one opening 17 and blocking areas to control the flow geometry of the plasma generator product to produce a uniform flow. The mouth of the inlet is larger than its throat. (Figure 1)

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4. Claims 48-52, and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by Part, US Patent Application Publication 2002/0189760 A1.

Park teaches a process chamber 10 that includes: an inlet 11 leading into the processing chamber; a remote plasma generator PQ; a channeling duct configured to channel the plasma generator product to the inlet 11; and an inlet insert 50 having at least one opening 51 and blocking areas to control the flow geometry of the plasma generator product to produce a non-uniform flow. (Figures 3 and 3A)

5. Claims 48-52, 54, 55, 57, 58, 64, and 65 are rejected under 35 U.S.C. 102(e) as being anticipated by Okuda et al, US Patent Application Publication 2003/0213435 A1.

Okuda et al et al teaches a process chamber 20 that includes: an inlet (nozzle) 30 leading into the processing chamber and includes a throat (at the lower edge of the nozzle adjacent the chamber wall) and a mouth (horizontal sidewalls; a remote plasma generator 37; a channeling duct configured to channel the plasma generator product to the inlet via throat; and a plate located between the throat and mouth of the inlet, having at least one opening 34 and blocking areas to control the flow geometry of the plasma generator product to produce a non-uniform flow. The mouth of the inlet is larger than its throat. (Figure 1-4, 6A, and 6B)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 54 and 57-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shang et al, US Patent 6,182,603 B1.

Shang et al was discussed above.

Shang et al differs from the present invention in that Shang et al does not teach that the plate forms a non-uniform flow geometry, that the plate is located in the mouth, or that the inlet has a conical profile.

The flow geometry is dependent on the process and processing chamber. Non-uniform flow geometry is used to correct for variations in the treatment of the substrate caused by non-uniform heating or gas concentrations. It is modified to produce the desired flow geometry to provide the optimum reactive gas distribution to optimize the uniformity of the treatment performed on the substrate. The location and shape of the holes, the location of the plate with respect to the mouth of the inlet, and the shape of the showerhead are all factors in the flow geometry and are used to optimize the flow geometry.

The motivation for optimizing the holes, location of the plate, and shape of the showerhead is to optimize the flow geometry for the inlet to create the desired flow geometry.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form a non-uniform flow geometry by optimizing the size and shape of the holes, the location of the plate, and the shape of the showerhead.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to

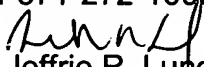
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applicant's disclosure. The cited art teaches the technological background of the invention. The cited art contains patents that could be used to reject the claims under 35 USC § 102 or 103. These rejections have not been made because they do not provide any additional or different teachings, and if they were applied, would have resulted in an undue multiplication of references. (See MPEP 707.07(g))

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jeffrie R. Lund
Primary Examiner